REMARKS

Claims 1-18 remain in this application. Claims 1 and 8 have been amended. Claims 1, 8 and 13 are independent claims.

A. Basis for Rejection of Claims

Claims 1-18 of Applicant's invention were rejected under 35 U.S.C. 102(b) as being anticipated by Swanson et al. (hereinafter "Swanson"). In response to the rejection, Applicant has amended independent claims 1 and 8 to further distinguish them from the prior art. In amended claim 1, the use of phase information and delay information is clarified. Phase noise is at least partially cancelled by using two cross-interferometer combinations of information. One cross-interferometer combination is the use of phase information specific to the reference interferometer and delay information specific to the test interferometer. The second cross-interferometer combination is the use of phase information specific to the test interferometer and the delay information specific to the reference interferometer. The use of the two cross-interferometer combinations of information is not anticipated by Swanson. Claim 8 has been amended to identify the irregular frequency variations as "phase noise."

B. Patentability of Claims 1 and 13

In the Office action dated September 9, 2004, the pending claims were rejected under 35 U.S.C. 102(b) as allegedly being unpatentable over Swanson. The Office action cited column 6, lines 46-62 of the cited reference as disclosing using delay information in combination with phase information to at least partially cancel out phase noise. Swanson (column 6, lines 47-50) teaches that the use of an auxiliary interferometer can partially correct for deviations from the ideal in the sweep of an optical source by providing signal trigger pulses at equally spaced increments in the source frequency. Swanson (column 6, lines 54-57) also teaches that when a frequency sweep is non-linear but very repeatable, correction for deviations

from the ideal sweep of the optical source is performed by the signal processing of the detector signal. Fig. 3 of the cited reference is provided to further explain the signal processing. The flow chart discloses that a chirped frequency equally sampled in real time is transformed into a new time axis to yield a linear frequency sweep. The transformed time axis is then interpolated to yield equally spaced time samples and, lastly, Fourier analysis is performed to yield a reflectivity profile. However, Applicant respectfully points out that there is no teaching in the cited prior art that phase information is used in combination with delay information to at least partially cancel phase noise.

Phase and delay information are components of the signal processing described by Fig. 3 of Swanson. However, there is no teaching that phase information from the test interferometer is used with delay information from the reference interferometer or that phase information from the reference interferometer is used with delay information from the test interferometer to at least partially cancel phase noise. That is, the cross-interferometer information combinations patentably distinguish the invention from the teachings of Swanson. Moreover, the delay information taught by Swanson (column 7, lines 25-35) is the relative delay (τ) between the reference reflection and sample reflection, rather than the delay that is specific to a particular interferometer.

Amended claim 1 of Applicant's invention, at line 15, describes a method that includes using said phase information that is specific to said reference interferometer in combination with delay information that is specific to said test interferometer and using said phase information that is specific to said test interferometer in combination with delay information that is specific to said reference interferometer to at least partially correct said phase noise. Stated differently (page 3, lines 4-6), delay information regarding one of the interferometers is used with phase information acquired from the other interferometer in the cancellation of phase noise effects. This is not anticipated by Swanson.

Regarding claim 13 (lines 11-17), as previously remarked, the cited prior art does not anticipate using phase information in combination with delay information to at least partially cancel phase noise. Furthermore, there

is no teaching of both (a) determining a first difference between a phase of a test output of said test heterodyne interferometer at each time t and a phase of said test output at each said time t offset by said known delay and (b) determining a second difference between a phase of a reference output of said reference heterodyne interferometer at each said time t and a phase of said reference output at each said time t offset by a delay representative of a delay of said test heterodyne interferometer.

In conclusion, Applicant respectfully asserts that a material difference exists between its amended claim 1 and independent claim 13 and the cited prior art. Reconsideration of the patentability of the claims and their dependent claims is requested.

C. Patentability of Claim 8

Claim 8 of Applicant's invention was rejected under 35 U.S.C. 102(b) as being anticipated by Swanson. Applicant has amended claim 8 to further distinguish the claimed invention from the cited prior art. Specifically, a new subparagraph was added, namely "said irregular frequency variations defining phase noise."

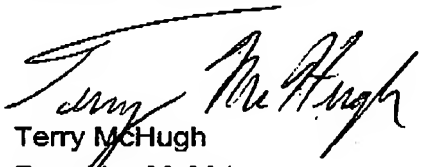
Swanson, (column 7, lines 23-25) teaches that the modulation of the optical carrier phase and frequency includes a stochastic random phase component which is neglected for the purpose of this description. Applicant's claimed invention does not neglect this random phase component. Rather, the claimed invention at least partially offsets the effects of the random component by imposing the delay of a device under test (DUT) on the reference output signal and imposing a known delay on the test output signal. Support for the amended claim can be found on page 3, lines 14-17, wherein the undesired (irregular) frequency fluctuations (variations) are random and occur as a result of quantum or stochastic effects in the generation or manipulation of the light beam. These random fluctuations produce the phase noise effects.

In view of the remarks herein, Applicant respectfully asserts a material difference exists between the amended claim 8 and the cited prior

art. Reconsideration for patentability of the amended independent claim and its dependent claims is requested.

Applicant respectfully requests reconsideration of the claims in view of the amendments and remarks made herein. A notice of allowance is earnestly solicited. In the case that any issues regarding this application can be resolved expeditiously via a telephone conversation, Applicant invites the Examiner to call Terry McHugh at (650) 969-8458.

Respectfully submitted,



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